

# Developing scientific capacity in the Global South

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# Summary

In this thesis, our objective is to provide a better understanding of how researchers, institutions and countries in low and middle-income regions can advance their scientific capacity and employ it for higher research citation impact, international collaboration, alignment between research priorities and social needs, and university-industry interactions. We raised different research questions and used different quantitative approaches in order to provide insights for policy makers to create and manage policies that promote the absorption, creation, diffusion, application, and retention of scientific knowledge in the Global South.

The second chapter is the first study that creates a framework to analyse the determinants of citation impact at country level. It displays a U-shaped relationship between research citation impact and GDPpc and finds that previous citation impact, level of international collaboration and total publications in a specific scientific field are important determinants of citation impact among all nations. However, specialisation in particular scientific fields seem significantly more important in lower income regions. The third and fourth chapters combine unique survey data with bibliometric data to study the characteristics of highly cited researchers in Africa and which factors influence international research collaboration in Africa. The results are consistent with previous literature but discussed within the African context. In the fifth chapter of the thesis, we change focus, and we investigate to what extent health research capacity in Africa has been aligned with medical needs in the continent. We use text mining to combine bibliometric data from the Web of Science with the estimates of the disability-adjusted life years produced by the World Health Organization. We find that in sub-Saharan Africa most diseases with high disease burden are also the ones with relatively more research effort and that the resources used to fund that research come mostly from international research funders (public non-African and philanthropic). In the last empirical chapter, we study what kind of characteristics make research institutions more prone to interact with the private sector in Latin America. The main finding is that the scientific institutions that have a more diverse set of knowledge sources and are in brokerage positions at the national level, within their scientific discipline, are the ones that are working more intensively with industry.